

CLAIMS

WE CLAIM:

- 5      1. A structure comprising:  
        an image sensor having an active area and a bond  
        pad on a first surface of said image sensor;  
        a window having an interior surface and an  
        exterior surface opposite said interior surface, said  
        interior surface of said window facing said first  
        surface of said image sensor; and  
10      an electrically conductive via extending through  
        said window from said interior surface to said exterior  
        surface of said window, said via being electrically  
        connected to said bond pad.
- 15      2. The structure of Claim 1 wherein an area of  
        said window is less than an area of said first surface  
        of said image sensor.
- 20      3. The structure of Claim 2 wherein said  
        structure is a chip size image sensor package.
- 25      4. The structure of Claim 1 wherein said active  
        area is responsive to radiation, said window being  
        transparent to said radiation.
- 30      5. The structure of Claim 1 further comprising:  
        an electrically conductive interior trace on said  
        interior surface of said window; and  
        an electrically conductive bump electrically  
        connecting said bond pad to said interior trace.
- 35      6. The structure of Claim 5 wherein said interior  
        trace is a land aligned with said via, said bump and  
        said bond pad.

7. The structure of Claim 5 wherein said interior trace is a metallization extending along said interior surface of said window.

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cont

5 8. The structure of Claim 5 wherein said via is offset from said bump, said interior trace extending along said interior surface of said window to electrically connect said via to said bump.

10 9. The structure of Claim 1 further comprising an electrically conductive exterior trace on said exterior surface of said window, said exterior trace being electrically connected to said via.

15 10. The structure of Claim 9 further comprising an electrically conductive pad on said exterior trace.

20 11. The structure of Claim 10 wherein said exterior trace is a land aligned with said via and said pad.

25 12. The structure of Claim 10 wherein said exterior trace is a metallization extending along said exterior surface of said window.

30 13. The structure of Claim 10 wherein said via is offset from said pad, said exterior trace extending along said exterior surface of said window to electrically connect said via to said pad.

35 14. The structure of Claim 1 wherein said window includes a central region and a peripheral region, said central region being aligned with said active area, said via being formed within said peripheral region.

15. The structure of Claim 14 further comprising a bead contacting said first surface of said image sensor and further contacting said peripheral region of said window, said bead forming a seal between said peripheral region of said window and said image sensor.

16. The structure of Claim 15 wherein said window, said bead, and said image sensor define a sealed cavity.

17. The structure of Claim 16 wherein said active area is responsive to radiation, said cavity containing a medium transparent to said radiation.

18. The structure of Claim 17 wherein said medium is air.

19. The structure of Claim 17 wherein said medium is an encapsulant.

20. The structure of Claim 1 further comprising an image sensor substrate comprising said image sensor.

21. An image sensor package comprising:  
an image sensor having an active area and bond pads on a first surface of said image sensor;  
a window mounted to said image sensor, said window having an area less than an area of said first surface of said image sensor;

a plurality of electrically conductive interior traces on an interior surface of said window;

a plurality of electrically conductive bumps electrically and physically connecting said bond pads to said interior traces;

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a plurality of electrically conductive vias extending from said interior surface of said window to an exterior surface of said window, said vias being electrically connected to said interior traces; and

5 a plurality of electrically conductive exterior traces on said exterior surface of said window, said exterior traces being electrically connected to said vias.

10 22. The image sensor package of Claim 21 wherein said window comprises a central region aligned with said active area and a peripheral region, said interior traces, said vias and said exterior traces being formed within said peripheral region.

15 23. The image sensor package of Claim 22 further comprising a bead forming a seal between said peripheral region and said image sensor.

20 24. The image sensor package of Claim 23 wherein said bead has sides coplanar with sides of said image sensor.

25 25. The image sensor package of Claim 24 wherein said image sensor package is chip size.

30 26. The image sensor package of Claim 21 further comprising an image sensor substrate comprising said image sensor.

27. An image sensor package comprising:  
an image sensor having a bond pad on a first surface of said image sensor;

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a window having an interior surface, an area of  
said window being less than an area of said first  
surface of said image sensor;

an electrically conductive interior trace on said  
5 interior surface of said window; and

an electrically conductive bump electrically  
connecting said bond pad to said interior trace.